## SPEC® CFP2006 Result

**ASUSTeK Computer Inc.**  
(Test Sponsor: Intel Corporation)  
**ASUS Q170M-C motherboard (Intel Core i7-6700)**  

**SPECfp®_rate2006 = 181**  
**SPECfp_rate_base2006 = 176**

<table>
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**TEST ACCOUNT**  
Test date: Feb-2016  
Test sponsor: Intel Corporation  
Tested by: Intel Corporation

**CPU2006 license:** 13  
**Test date:** Feb-2016  
**Hardware Availability:** Aug-2015  
**Test sponsor:** Intel Corporation  
**Tested by:** Intel Corporation  
**Software Availability:** Aug-2015  

**Hardware**  
**CPU Name:** Intel Core i7-6700  
**CPU Characteristics:** Intel Turbo Boost Technology up to 4.00 GHz

**Software**  
**Operating System:** Microsoft Windows 7 Professional  
**Compiler:** C/C++: Version 16.0.0.110 of Intel C++ Studio XE for Windows;  
Fortran: Version 16.0.0.110 of Intel Fortran Studio XE for Windows;  
**Auto Parallel:** No

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Standard Performance Evaluation Corporation  
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http://www.spec.org/  
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ASUSTeK Computer Inc.  
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ASUS Q170M-C motherboard (Intel Core i7-6700)  

SPEC CFP2006 Result  
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| L3 Cache: | 8 MB I+D on chip per chip |  |
| Other Cache: | None |  |
| Memory: | 8 GB (2 x 4 GB 2Rx4 PC4-2133P-U) |  |
| Disk Subsystem: | 1 TB Seagate Barracuda HDD, 7200 RPM |  |
| Other Hardware: | None |  |
| File System: | NTFS |  |
| System State: | Default |  |
| Base Pointers: | 32/64-bit |  |
| Peak Pointers: | 32/64-bit |  |
| Other Software: | SmartHeap Library Version 11.0 from http://www.microquill.com/ |  |

**Results Table**

| Benchmark | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
|-----------|--------|---------|-------|---------|-------|---------|-------| | 449.bwaves | 8 | 843 | 129 | 842 | 129 | 841 | 130 | | 4 | 403 | 135 | 403 | 135 | 403 | 135 |
| 446. gamess | 8 | 749 | 209 | 748 | 210 | 749 | 209 | | 8 | 749 | 209 | 748 | 210 | 749 | 209 |
| 447.milc | 8 | 534 | 138 | 534 | 138 | 534 | 138 | | 8 | 534 | 138 | 534 | 138 | 534 | 138 |
| 448.zeusmp | 8 | 335 | 218 | 334 | 218 | 334 | 218 | | 8 | 335 | 218 | 334 | 218 | 334 | 218 |
| 449.gromacs | 8 | 209 | 274 | 207 | 275 | 213 | 268 | | 8 | 209 | 274 | 207 | 275 | 213 | 268 |
| 450.cactusADM | 8 | 408 | 234 | 407 | 234 | 407 | 234 | | 8 | 408 | 234 | 408 | 234 | 408 | 234 |
| 451.leslie3d | 8 | 872 | 86.4 | 870 | 86.4 | 873 | 86.4 | | 4 | 395 | 95.2 | 392 | 96.0 | 397 | 94.8 |
| 452.namd | 8 | 357 | 180 | 356 | 180 | 356 | 180 | | 8 | 354 | 182 | 351 | 183 | 353 | 182 |
| 453.dalil | 8 | 262 | 282 | 263 | 283 | 255 | 358 | | 8 | 262 | 282 | 263 | 283 | 255 | 358 |
| 454.soplex | 8 | 766 | 87.2 | 764 | 87.2 | 776 | 85.6 | | 8 | 766 | 87.2 | 764 | 87.2 | 776 | 85.6 |
| 455.povray | 8 | 151 | 282 | 150 | 283 | 151 | 282 | | 8 | 125 | 340 | 126 | 339 | 126 | 339 |
| 456.calculix | 8 | 204 | 323 | 203 | 325 | 203 | 326 | | 8 | 204 | 323 | 203 | 325 | 203 | 326 |
| 457.GemsfDTD | 8 | 1190 | 71.2 | 1189 | 71.2 | 1190 | 71.2 | | 4 | 534 | 79.6 | 534 | 79.6 | 534 | 79.6 |
| 458.tonto | 8 | 405 | 194 | 407 | 194 | 409 | 192 | | 8 | 392 | 201 | 389 | 202 | 387 | 203 |
| 459.lbm | 8 | 666 | 165 | 666 | 165 | 666 | 165 | | 4 | 328 | 168 | 328 | 168 | 328 | 168 |
| 460.sphinx3 | 8 | 566 | 158 | 568 | 158 | 567 | 158 | | 8 | 566 | 158 | 568 | 158 | 567 | 158 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

**Compiler Invocation Notes**

To compile these binaries, the Intel Compiler 16.0 was set up to generate 64-bit binaries with the command: "psxevars.bat intel64" (shortcut provided in the Intel(r) Parallel Studio XE 2016 program folder)

**Submit Notes**

Processes were bound to specific processors using the start command with the /affinity switch. The config file option 'submit' was used to generate the affinity mask for each process.
Platform Notes

Sysinfo program C:\SPEC16.0/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on CltF832E48856E2 Sat Feb 27 14:07:09 2016

This section contains SUT (System Under Test) info as seen by
some common utilities. To remove or add to this section, see:
http://www.spec.org/cpu2006/Docs/config.html#sysinfo

Trying 'systeminfo'
OS Name       : Microsoft Windows 7 Professional
OS Version    : 6.1.7601 Service Pack 1 Build 7601
System Manufacturer: System manufacturer
System Model  : System Product Name
Processor(s)  : 1 Processor(s) Installed.
   [01]: Intel64 Family 6 Model 94 Stepping 3 GenuineIntel ~3401 Mhz
BIOS Version  : American Megatrends Inc. 0704, 1/12/2016
Total Physical Memory: 8,069 MB

Trying 'wmic cpu get /value'
DeviceID      : CPU0
L2CacheSize   : 1024
L3CacheSize   : 8192
MaxClockSpeed : 3401
Name          : Intel(R) Core(TM) i7-6700 CPU @ 3.40GHz
NumberOfCores : 4
NumberOfLogicalProcessors: 8

(End of data from sysinfo program)

Component Notes

Tested systems can be used with Shin-G ATX case,
PC Power and Cooling 1200W power supply

General Notes

450.soplex (base): "getline_test" src.alt was used.
447.dealII (base): "max_prototype" src.alt was used.
447.dealII (base): "cxx11_make_pair" src.alt was used.
450.soplex (base): "getline_test" src.alt was used.
447.dealII (base): "max_prototype" src.alt was used.
447.dealII (base): "cxx11_make_pair" src.alt was used.

Binaries compiled on a system with 1x Intel Xeon E5-2699 v3 CPU
+ 64GB memory using Windows 8.1 Enterprise 64-bit
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Software Availability: Aug-2015

Base Compiler Invocation

C benchmarks:
  icl -Qvc12 -Qstd=c99

C++ benchmarks:
  icl -Qvc12

Fortran benchmarks:
  ifort

Benchmarks using both Fortran and C:
  icl -Qvc12 -Qstd=c99 ifort

Base Portability Flags

410.bwaves: -DSPEC_CPU_P64
416.gamess: -DSPEC_CPU_P64
333.milc: -DSPEC_CPU_P64
434.zeusmp: -DSPEC_CPU_P64
435.gromacs: -DSPEC_CPU_P64
436.cactusADM: -DSPEC_CPU_P64 /names:lowercase /assume:underscore
437.leslie3d: -DSPEC_CPU_P64
444.namd: -DSPEC_CPU_P64 /TP
447.dealII: -DSPEC_CPU_P64 -DDUAL_II_MEMBER_VAR_SPECIALIZATION_BUG -DSPEC_CPU(boost:config:MSC:VER) -DSPEC_NEED_ALGORITHM
450.soplex: -DSPEC_CPU_P64 -DSPEC_GETLINE_TEST
453.povray: -DSPEC_CPU_P64
459.GemsFDTD: -DSPEC_CPU_P64 /names:lowercase
465.tonto: -DSPEC_CPU_P64
470.lbm: -DSPEC_CPU_P64
481.wrf: -DSPEC_CPU_P64 -DSPEC_CPU_WINDOWS_ICL
482.sphinx3: -DSPEC_CPU_P64

Base Optimization Flags

C benchmarks:
  -QxCORE-AVX2 -Qipo -O3 -Qprec-div -Qansi-alias -Qopt-prefetch
  -Qauto-ilp32 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE

C++ benchmarks:
  -QxCORE-AVX2 -Qipo -O3 -Qprec-div -Qansi-alias -Qopt-prefetch
  -Qcxx-features -Qauto-ilp32 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE

Fortran benchmarks:
  -QxCORE-AVX2 -Qipo -O3 -Qprec-div -Qansi-alias -Qopt-prefetch
  /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE

Continued on next page
Baselike Optimization Flags (Continued)

Benchmarks using both Fortran and C:
- `QxCORE-AVX2`
- `Qipo`
- `O3`
- `Qprec-div`
- `Qansi-alias`
- `Qopt-prefetch`
- `Qauto-ilp32` /F1000000000 shlw64M.lib
- `link /FORCE:MULTIPLE`

Peak Compiler Invocation

C benchmarks:
icl -Qvc12 -Qstd=c99

C++ benchmarks:
icl -Qvc12

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icl -Qvc12 -Qstd=c99 ifort

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
433.milc: basepeak = yes

470.lbm: `QxCORE-AVX2` -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo
- `O3` -Qprec-div- `Qansi-alias` -Qopt-prefetch -Qauto-ilp32
/F1000000000 shlw64M.lib
- `link /FORCE:MULTIPLE`

482.sphinx3: basepeak = yes

C++ benchmarks:
444.namd: `QxCORE-AVX2(pass 2)` -Qprof_gen(pass 1) -Qprof_use(pass 2)
- `Qipo` - `O3` -Qprec-div- -oa -Qauto-ilp32 /F100000000000
shlw64M.lib
- `link /FORCE:MULTIPLE`

447.dealII: basepeak = yes
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Peak Optimization Flags (Continued)

450.soplex: basepeak = yes

453.povray: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)  
-Qipo -O3 -Qprec-div -Qopt-prefetch -Qauto-ilp32  
/F1000000000 shlW64M.lib -link /FORCE:MULTIPLE

Fortran benchmarks:

410.bwaves: -QxCORE-AVX2 -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo  
-O3 -Qprec-div -Qansi-alias -Qopt-prefetch /F1000000000  
shlW64M.lib -link /FORCE:MULTIPLE

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: Same as 410.bwaves

459.GemsFDTD: Same as 410.bwaves

465.tonto: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)  
-Qipo -O3 -Qprec-div -Qunroll4 -Qauto /F1000000000  
shlW64M.lib -link /FORCE:MULTIPLE

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at

You can also download the XML flags source by saving the following link:
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For questions about this result, please contact the tester. For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.